CLAIMS

1. A photocurable resin composition suitable for use in three-dimensional photofabrication comprising (A) a cationically polymerizable organic compound, (B) a cationic photoinitiator, and (C) a (co)polymer obtainable by (co)polymerization of monomers comprising at least one (meth)acrylate-group comprising monomer

2 The resin composition according to claim 1, wherein (A) is chosen from the group consisting of cyclohexeneoxide group-containing compounds and glycidyl group-containing compounds.

3 The resin composition according to anyone of claim 1 or 2, wherein (A) is chosen from the compounds 3,4-epoxycyclohexylmethyl- 3',4'-epoxycyclohexanecarboxylate and bis(3,4-epoxycyclohexylmethyl)adipate.

4 The resin composition according to anyone of claims 1-3, wherein (C) may be one or more of (co)polymers selected from (1) a homopolymer of a (meth)acrylate group containing monomer, (2) a copolymer made from two or more (meth)acrylates group containing monomers, and (3) a copolymer made from one or more (meth)acrylates group containing monomers and one or more other monomers copolymerizable with the (meth)acrylate group containing monomer.

5 The resin composition according to anyone of claims 1-4, wherein (C) is a copolymer from two or more (meth)acrylic acid alkyl esters.

6 The resin composition according to anyone of claims 1 5, wherein (C) is a copolymer of n-butyl acrylate and 2-ethylhexyl acrylate.

7 The resin composition according to anyone of claims 1-6, wherein (C) is a copolymer of n-butyl acrylate and 2-ethylhexyl acrylate, wherein the ratio of n-butyl acrylate to 2-ethylhexyl acrylate is from 70:30 to 90:10.

8. The resin composition according to claim 7, wherein the weight average molecular weight (Mw) of (C) is 2,000-20,000.

9. The resin composition according to anyone of claims 1-8, wherein the amount (C) used is in the range of 0.01-5 wt%

10. The resin composition according to anyone of claims 1-9, wherein a reactive diluent is present.

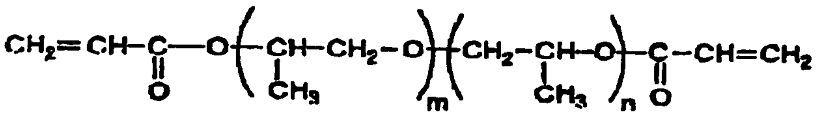
11. The resin composition according to claim 10, wherein the reactive diluent is selected from the group consisting of trimethylolpropane tri(meth)acrylate, EO-

modified trimethylolpropane tri(meth)acrylate, dipentaerythritol hexa(meth)acrylate, dipentaerythritol penta(meth)acrylate, and ditrimethylolpropane tetra(meth)acrylate.

12. A photocurable resin composition suitable for use in stereolithography, wherein the resin composition contains between 0.3 and 1.5 wt% water.

13. The resin composition according to anyone of claims 1-10, wherein the resin composition contains between 0.3 and 1.5 wt% water.

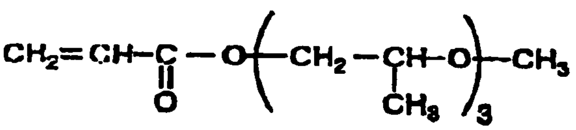
14. A process for making three dimensional objects from successive layers of a photocurable composition comprising the steps of (a) forming a layer of photocurable resin composition; (b) curing at least a portion of the layer by exposure to radiation; (c) introducing a new layer of resin composition onto the layer previously exposed to the radiation; (d) repeating steps (b) and (c) until a three dimensional object is formed and (e) washing the object with a washing agent, whereby the washing agent satisfies two conditions: (I) the washing agent causes a test specimen, obtained by photocuring a liquid resin comprising 50 parts by weight of polypropylene glycol diacrylate shown by the following formula (A),



$$CH_2=CH-\underset{\underset{O}{\|}}{C}-O\left(\underset{\underset{CH_3}{|}}{CH}-CH_2-O\right)_m\left(CH_2-\underset{\underset{CH_3}{|}}{CH}-O\right)_n\underset{\underset{O}{\|}}{C}-CH=CH_2$$

(A)

wherein m + n is 7, 47 parts by weight of methoxytripropylene glycol acrylate shown by the following formula (B),



$$CH_2=CH-\underset{\underset{O}{\|}}{C}-O\left(CH_2-\underset{\underset{CH_3}{|}}{CH}-O\right)_3CH_3$$

(B)

and 3 parts by weight of 1-hydroxycyclohexyl phenyl ketone as a photoinitiator, to swell at a swelling rate of 10 wt% or less when immersed therein at 23°C for 12 hours, and (II) the washing agent causes the liquid resin to be dissolved or dispersed therein when 5 ml of the liquid resin is added to

30 ml of the washing agent and shaken for one minute at ambient temperature.

15. A process for making three dimensional objects from successive layers of a photocurable composition comprising the steps of (a) forming a layer of photocurable resin composition; (b) curing at least a portion of the layer by exposure to radiation; (c) introducing a new layer of resin composition onto the layer previously exposed to the radiation; (d) repeating steps (b) and (c) until a three dimensional object is formed and (e) washing the object with a washing agent, whereby the washing agent comprises a compound of which the three-component Hansen solubility parameter is 27-35 $(MPa)^{1/2}$.

16. A process for making three dimensional objects from successive layers of a photocurable composition comprising the steps of (a) forming a layer of photocurable resin composition; (b) curing at least a portion of the layer by exposure to radiation, (c) introducing a new layer of resin composition onto the layer previously exposed to the radiation; (d) repeating steps (b) and (c) until a three dimensional object is formed and (e) washing the object with a washing agent, whereby the washing agent comprises a compound shown by the formula:

$$HO\text{-}(R^6\text{-}O)_p\text{-}H$$

wherein R^6 represents an alkylene group having 1-10 carbon atoms and p is an integer from 1 to 20, excluding $HOCH_2OH$.

17. The process according to anyone of claims 13-15, wherein the washing agent comprises at least one compound selected from the group consisting of ethylene glycol, diethylene glycol, triethylene glycol, propylene glycol, dipropylene glycol, tripropylene glycol, and propylene carbonate.